Ocimum basilicum improve chronic stress-induced neurodegenerative changes in mice hippocampus

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Abstract:

Alzheimer’s disease (AD), one of the progressive neurodegenerative diseases might be associated with exposure to stress and altered living conditions. This study aimed to evaluate the effectiveness of Ocimum basilicum (OB) essential oils in improving the neurodegenerative-like changes induced in mice after exposed to chronic unpredictable mild stress (CUMS). Forty male Swiss albino mice divided into four groups (n = 10); the control, CUMS, CUMS + Fluoxetine, CUMS + OB were used. Behavioral tests, serum corticosterone level, hippocampus protein level of the glucocorticoid receptors (GRs) and brain-derived neurotropic factor (BDNF) were determined after exposure to CUMS. Hippocampus was histopathologically examined. Data were analyzed using statistical package for the social sciences (SPSS) and P value of less than 0.05 was considered significant. OB diminished the depression manifestation as well as impaired short term memory observed in the mice after exposure to the CUMS as evidenced by the forced swimming and elevated plus maze test. OB also up-regulated the serum corticosterone level, hippocampal protein level of the glucocorticoid receptor and the brain-derived neurotropic factor and reduced the neurodegenerative and atrophic changes induced in the hippocampus after exposure to CUMS. Essential oils of OB alleviated the memory impairment and hippocampal neurodegenerative changes induced by exposure to the chronic unpredictable stress indicating that it is the time to test its effectiveness on patients suffering from Alzheimer disease.

Keywords:

Sweet Basil . Depression . Alzheimer . Corticosterone . GR . BDNF

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